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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/399,502	09/20/1999	GARY D. MARTIN	AMCC3000	2333

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EXAMINER

VAUGHAN, MICHAEL R

ART UNIT	PAPER NUMBER
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2131

DATE MAILED: 05/19/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/399,502

Applicant(s)

MARTIN, GARY D.

Examiner

Michael R Vaughan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-17 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

Claims 1-5, 6-17, and 19 have been fully reconsidered and are pending.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim **10** is amended so that it ends with a period.

Response to Arguments

Examiner has fully considered the arguments presented in the action mailed 4-05-04 but they are not persuasive.

With respect to amended claims 1 and 13, the added limitations are clearly presented in the alternative. Therefore because the previous cited prior art reference, Nohara, clearly meets at least one of the alternative limitations, the claims are still anticipated. Nohara teaches encrypting only the data portion of the frame (column 4,

lines 54-59) as indicated by the Applicant. If Applicant at a later time wishes to change the alternativeness of the claim language, the examiner is citing references, which teach encrypting both the data and the header of frames for the record. These references in view of Nohara would render the claim obvious under 35 USC 103.

Applicant argues on page 10 of the immediate response that Nohara fails to teach at least one overhead bit in the frame to disable the scramble pattern device. Nohara teaches in column 3 starting at line 41 that the transmitted signal has framing bits to assist with bounding the data in predetermined frames. Nohara has states that interleaver pattern can be optionally changed within the number of data in a transmission frame (column 3, lines 30-31). Therefore, this teaching would lead one to believe there are overhead data bits present that would inform the descrambler about these changes. In view of this option and the fact that Nohara sends framing bits, the examiner maintains that there is at least one overhead bit in the frame to disable the scramble pattern.

Claims 1-5, 7, 9, 10, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Nohara et al (USP 5,881,154).

As per claim 1, Nohara et al teach a frame generator having a first input to accept information to be transmitted, said frame generator organizing the information into frames including both the information and system overhead, said frame generator

having an output to provide frames of information to be transmitted, frame generator divides each frame into time multiplexed sections including a first frame period when information is included in the frame, and a second frame period when overhead is included in the frame, said frame generator having a second output to provide timing information regarding the occurrence of the first and second frame periods; and a self-synchronous scrambling circuit having a first input operatively connected to the output of said frame generator(column 1, lines 25-30, column 2, lines 50-55, and Figs 1 and 4)., said scrambler having a second input operatively connected to second output of said frame generator, said scrambler selectively scrambling frame sections in response to the received frame period timing information, whereby frame sections are selectively encrypted for transmission (column 3, lines 55-65 and Figs 4 and 6).

As per claim 2, Nohara et al teach a data generator having an output operatively connected to the input of said frame generator to provide information to be transmitted (Fig 1).

As per claim 3, Nohara et al teach a self-synchronous de-scrambling circuit having a first input operatively connected to the output of said scrambling circuit, said de- scrambling circuit decrypting the received encrypted frames to provide received frames of information at an output (column 2, lines 55-63).

As per claim 4, Nohara et al teach a frame terminal having an input operatively connected to the output of said de-scrambling circuit, said frame terminal removing the overhead information associated with each frame to provide the transmitted information, whereby the transmitted information is recovered (column 2, lines 55-63).

As per claim 5, Nohara et al inherently teach an information terminal having a first input operatively connected to the output of said frame terminal to receive the transmitted information because the data that is sent out must flow to a source that is to perform some action with the recovered data (column 2, line 63).

As per claim 7, Nohara et al teach said scrambling circuit encrypts the information section of each frame in accordance with a first predetermined encryption pattern (Fig 6).

As per claim 9, Nohara et al teach frame terminal divides each received frame into time multiplexed sections including a first frame period when information is included in the frame and a second frame period when overhead is included in the frame, said frame terminal having a second output to provide timing information regarding the occurrence of the first and second frame periods, and in which said descrambling circuit has a second input operatively connected to second output of the frame terminal, said de-scrambling circuit for selectively decrypting frame sections in accordance with the

first encryption pattern in response to the received frame period timing information, whereby frame sections are selectively decrypted (column 3, lines 55-65 and Figs 4 and 6).

As per claim 10, Nohara et al teach said de-scrambler circuit is for decrypting only the information section of each frame in response to timing signals received from the second output of said frame terminal, whereby the overhead data is not de-scrambled (column 3, lines 55-65 and Figs 8 and 6).

As per claim 13, Nohara et al teach the steps of:

- a) accepting information to be transmitted (Fig 1, element 10);
- b) organizing the information into frames including time multiplexed sections of information and sections of overhead (Fig 1, element 11);
- c) self-synchronously scrambling the frames by either encrypting only the information sections in accordance with a first predetermined encryption pattern or by encrypting the information sections in accordance with the first predetermined encrypting pattern and selectively encrypting the overhead sections in accordance with a second predetermined encryption pattern (Fig 1, element 14); and
- d) transmitting the scrambled frames (Fig 1).

As per claim 14, Nohara et al teach the steps of:

- e) receiving the scrambled frames (column 2, lines 56);

- f) self-synchronously de-scrambling the frames in accordance with the first encryption pattern (column 2, line 60); and
- g) recovering the information from the frames (column 2, line 64).

As per claim 15, Nohara et al teach Step b) includes generating timing data to signal the occurrence of the information and overhead sections of the frames, and in which Step c) includes scrambling the frames in response the timing data signals of Step b) (column 1, lines 35-40).

As per claim 16, Nohara et al teach Step g) includes generating timing data to signal the occurrence of the information and overhead sections of the received frames, and in which Step f) includes descrambling the received frames in response the timing data signals of Step g) (column 6, 55-60).

As per claim 19, Nohara et al teach a means for generating information; a means for assembling the information into frames that include both the information and system overhead for transmission; and a means for self-synchronously and continuously scrambling the frames from said assembly means, subsequent to the assembly of the frames, whereby information and overhead are encrypted for transmission (Fig 1), in which self synchronous scrambling means includes control inputs with timing data that

are synchronous to at least one overhead bit in the frame to disable said scrambling means, whereby the scrambling operation becomes modifiable (column 1, lines 32-44).

Claim Rejections - 35 USC § 103

Claims 8, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nohara et al in view of White (USP 5,442,703) in view of Kim et al (USP 5,303,303).

As per claims 8 and 17, Nohara et al teaches encrypting the information section of the frame in accordance with a first predetermined encryption pattern (column 2, lines 50-55). Nohara et al does not teach encrypting the overhead bits with a second predetermined encrypted pattern. White teaches that the header and trailer (overhead) may be encrypted separately from the information-carrying portion (data) (column 1, lines 43-45). It is more secure to use multiple encryption processes. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to

employ the teachings of White within the system of Nohara et al because encrypting the header information increases the burden of a rogue to gain information about the transferred data.

Kim et al teaches that the use of multiple encryption keys (patterns) is desirable in communication (column 1 lines 23-26). It is obvious that if one was to encrypt the overhead separately from the data, that he/she should use a different encrypt pattern for each. Otherwise, both data and overhead could have simply been encrypted together with the same encryption pattern. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teaching to Kim et al within the system of Nohara et al because using two different encryption schemes greatly improves the security of the system.

With respect to claim 11, the examiner supplies the above-mentioned rationale for the motivation in the rejection of claim 8. It is obvious that claim 11 is decrypting, or undoing, the matter that was encrypted in claim 8. Therefore, the previous motivation of claim 8 applies to the rejection of claim 11.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nohara et al.

As per claim 12, Nohara et al does not explicitly teach that said frame generator accepts packets of HDLC information, in which said frame generator organizes the information and overhead in frames according to SONET protocols, in which said frame terminal accepts information organized into frames according to SONET protocols, and in which said frame terminal supplies packets of HDLC information. However, Nohara et al does teach that their system is for the use of transmitting ATM cells. It is obvious to one of ordinary skill in the art that ATM cells often travel over SONET. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Nohara et al and apply their teachings of frame transferring to SONET protocols.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

5,638,448 Nguyen

FIG. 4B illustrates a packet as encrypted by security level 2. In security level 2, the packet header and data are encrypted using single DES encoding. This level of

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security incurs slightly increased overhead as compared to security level 1, but provides an increased level of security for less secure environments such as wide area networks.

4,979,188 Kotzin et al.

According to the present invention, once a voice signal has been vo-coded as described in conjunction with FIG. 7, encryption of both the overhead data and samples may be provided (as more fully discussed hereinafter) to ensure complete voice security within the bandwidth currently available on standard (uncompensated) telephone channels.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

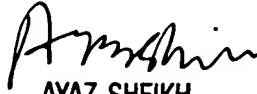
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R Vaughan whose telephone number is 703-305-0354. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael R Vaughan
Examiner
Art Unit 2131

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